

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) A gain circuit for use ~~[[in]]~~ with a DS-CDMA (Direct Sequence-Code Division Multiple Access) multi-user interference canceller/demodulator unit for cancelling interference waves of a plurality of users, the circuit comprising:
  - a variable gain amplifier; and
  - a gain controller coupled to the variable gain amplifier, the gain controller comparing reception characteristics of reception signals received from the plurality of users prior to interference cancellation processing with reception characteristics after the interference cancellation processing and evaluating a comparison result, the gain controller controlling gains of the variable gain amplifier prior to ~~baseband decoding~~ interference canceller/demodulator unit processing of the reception signals so as to maximize improvements of the reception characteristics of the reception signals on the basis of an evaluation result.
2. (Currently Amended) The ~~canceller~~ gain controller according to claim 1, wherein as the reception characteristics to be compared and evaluated, an SN (Signal-to-Noise) ratio or an  $E_b/N_0$  (energy per signal bit/noise power spectrum density) and/or a BER (Bit Error Rate) are used, and the SN ratio or  $E_b/N_0$  is controlled to be maximum, while the bit error rate is controlled to be minimum.
3. (Currently Amended) A circuit for use with a DS-CDMA multi-user interference canceller/demodulator unit comprising:

a variable gain amplifier whose gain can be controlled by a first control signal from an AGC controller;

a preliminary demodulation section for obtaining, in advance, reception characteristics of reception signals received from a plurality of users prior to interference cancellation processing, and notifying respective subsequent interference cancellation stages of the obtained data;

a section for measuring and obtaining the reception characteristics of the reception signals for the respective interference cancellation stages after the interference cancellation processing;

a section for comparing the reception characteristics of the respective interference cancellation stages upon the interference cancellation processing with the reception characteristics prior to the interference cancellation processing; and

a reception quality collection section for collecting comparison results from all the interference cancellation stages when an interference canceller determines that a degree of improvement of the reception characteristics is low, and generating a control signal for the AGC controller to correct the current gain of the variable gain amplifier to an AGC.

4. (Currently Amended) The AGC controller ~~canceller~~ according to claim 3, wherein after said reception quality collection section collects the comparison results in all the interference cancellation stages, a gain of said variable gain amplifier is so controlled as to optimize an average result of the comparison results.

5. (Currently Amended) A method for cancelling interference waves of a plurality of users to obtain a plurality of demodulated signals in a CDMA (Code

Division Multiple Access) multi-user system the method comprising: comparing reception characteristics of reception signals received from the plurality of users prior to interference cancellation processing with reception characteristics upon the interference cancellation processing

evaluating a comparison result;

and controlling gains prior to baseband decoding of the reception signals so as to maximize improvements of the reception characteristics of the reception signals on the basis of [[an]] the evaluation of the comparison result.

6. (Currently Amended) The method ~~system~~ according to claim 5, wherein an AGC controller generates a gain control signal for controlling a gain of said variable gain amplifier, an SN (Signal-to-Noise) ratio or an  $E_b/N_0$  (energy per signal bit/noise power spectrum density) and/or a BER (Bit Error Rate) are used as the reception characteristics to be compared and evaluated, and the SN ratio or  $E_b/N_0$  is controlled to be maximum, while the bit error rate is controlled to be minimum.